

CHUKA



UNIVERSITY

## UNIVERSITY EXAMINATIONS

### FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN NURSING

NURS 111: HUMAN ANATOMY I

STREAMS: BSC(NURS) YISI

TIME: 3 HOURS

DAY/DATE: MONDAY 03/12/2018

8.30 AM – 10.30 AM

---

#### INSTRUCTIONS:

1. Do not write anything on the question paper.
2. Mobile phones and any other reference materials are NOT allowed in the examination room.
3. The paper has three sections. Answer ALL questions in Sections A and B and C.

**Section A** consists of Twenty (20) compulsory multiple-choice questions.

**Section B** has Eight (8) compulsory short answer questions. Each question is worth FIVE marks. Answer all questions in the answer booklet provided. Responses written elsewhere may NOT be marked.

**Section C** has Two (2) long answer questions each worth TWENTY (20) marks. Answer BOTH QUESTIONS in the answer booklet provided.

4. All your answers for Section A (MCQs) should be on one page.
5. Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.
6. Write your answers legibly and use your time wisely

#### **Section A: Multiple Choice Questions (20 Marks)**

1. Which statement is correct about smooth muscles?
  - a. Is under involuntary control
  - b. Are multinucleated
  - c. Cells are separated by intercalated discs
  - d. Innervated by both sympathetic and parasympathetic systems

2. The anatomical location of this body cavity is dorsal?
  - a. Pelvic
  - b. Pleural
  - c. Mediastinal
  - d. Cranial
  
3. The anatomy of the plasma membrane:
  - a. Is composed entirely of lipids
  - b. Is mainly made of proteins
  - c. The proportion by weight of lipids and proteins is equal
  - d. Is composed of equal parts of carbohydrates and lipid
  
4. Nerve cell signalling
  - a. Does not involve chemical substances
  - b. It is quicker than hormonal signalling
  - c. Effects last longer than hormones
  - d. Utilizes second messengers on the post synaptic membrane
  
5. Cardiomyocytes communicate using?
  - a. Plasmodesmata
  - b. Z-discs
  - c. Gap junctions
  - d. Cell-cell contact
  
6. The recti muscle that elevates the eye?
  - a. Superior rectus
  - b. Inferior rectus
  - c. Medial rectus
  - d. Lateral rectus
  
7. The functional unit of contractile system in [striated muscle](#) is
  - a. Myofibril
  - b. Cross bridges
  - c. Z band
  - d. Sarcomere
  
8. Muscles get fatigue due to accumulation of
  - a. Lactic acid
  - b. ATP
  - c. Phosphate molecules
  - d. Carbon dioxide
  
9. Which one of the following sets of ions is necessary in the chemical events for [muscle contraction](#)?
  - a.  $\text{Na}^+$  and  $\text{K}^+$

- b.  $\text{Ca}^+$  and  $\text{Mg}^{++}$  ions
  - c.  $\text{Na}^+$  and  $\text{Ca}^{++}$  ions
  - d.  $\text{Na}^+$  and  $\text{Mg}^{++}$  ions
10. The sensory nerve involved in gustatory pathway from the posterior 1/3 of the tongue and pharynx is?
- a. Glossopharyngeal
  - b. Facial
  - c. Olfactory
  - d. Vagus
11. Epidermal cells associated with macrophage-like reactions?
- a. Keratinocytes
  - b. Merkel cell
  - c. Melanocytes
  - d. Langerhan's cells
12. A group of cells with a common structure and function is an example of a(n):
- a. Embryo
  - b. Organelle
  - c. Tissue
  - d. Organ
13. Which of the following disciplines is MOST likely to concentrate on the structure and functions of organelles?
- a. Gross anatomy
  - b. Histology
  - c. Cytology
  - d. Embryology
14. Both the sternum and vertebrae are examples of:
- a. Long bones
  - b. Short bones
  - c. Flat bones
  - d. Irregular bones
15. Which of the following binds calcium during the excitation – contraction coupling?
- a. Tropomyosin
  - b. Actin
  - c. Myosin
  - d. Troponin

16. Which one is an example of an effector?
- a. Cardiac muscle
  - b. Gland
  - c. Neuron
  - d. All the above
17. The structure that secretes a hormone that plays a role in the regulation of sleep/wake cycle:
- a. Thalamus
  - b. Pituitary gland
  - c. Pons
  - d. Pineal gland
18. Blood is prevented from back-flowing into the right ventricle by the?
- a. Pulmonary semilunar valve
  - b. Aortic semilunar valve
  - c. Tricuspid valve
  - d. Mitral valve
19. T lymphocytes gain their immunocompetence within the?
- a. Bone marrow
  - b. Spleen
  - c. Thyroid
  - d. Bursa of Fabricious
20. Which of the following does not empty into the thoracic duct?
- a. Lymph from the right leg
  - b. Intestinal trunk
  - c. Left jugular trunk
  - d. Right subclavian trunk

**Section B: Short Answer Questions (40 Marks)**

1. Write the basic anatomical terminologies for the following body parts (5 marks)
- a) Mouth
  - b) Breast
  - c) Forehead
  - d) Armpit
  - e) Knee
2. Distinguish Metaphase during meiosis I and mitosis (5 marks)
3. State the differences between organogenesis and morphogenesis (5 marks)
4. Discuss how mutations occur and what effects they may produce (5 marks)
5. Explain the uses of DNA fingerprinting (5 marks)

6. Describe the normal human anatomical position/posture (5 marks)
7. Outline the locations and characteristics of any five types of connective tissues (5 marks)
8. List and describe one (1) sign and symptom of the following genetic conditions: (5 marks)
  - a) Albinism
  - b) Cystic fibrosis
  - c) Down syndrome
  - d) Hemophilia
  - e) Muscular dystrophy

**Section C: Long Answer Questions (40 Marks)**

1. a) Define the term fertilization (2 marks)
    - b) List and explain three unique features that may occur during meiosis in reproductive cells (3 marks)
    - c) Tabulate at least five differences between the types of gametogenesis (5 marks)
    - d) With the aid of a well labelled, discuss foetal development and circulation (10 marks)
  2. a) During human developmental stages, studies on microscopic anatomy include? (3 marks)
    - b) Discuss the functions of the human musculoskeletal system (10 marks)
    - c) Identify the divisions of the circulatory system, and describe the blood path through the divisions naming all the blood vessels involved (7 marks)
-